content in the Y type **zeolite**. Otherwise, Nakaoka is silent as to the Na_2O content from other components utilized in forming the Nakaoka composition.

Applicants' claim 1, on the other hand, recites a Na_2O content in reference to the **catalyst as whole**, including not only the zeolite, but also the other elements recited in Claim 1, i.e., inorganic oxide and Lewis Acid-containing component. Applicants are therefore reflecting the Na_2O content after all of the various components of a catalyst are formulated, whereas it is submitted Nakaoka is merely discussing how to make its zeolite Y before incorporating it with the other components used to form its hydroprocessing catalyst. Because Nakaoka's teaching does not apply to the catalyst composition as a whole, it is submitted that a *prima facie* case with respect to the Na_2O content for the same has not been established.

Even to the extent a *prima facie* case was to be have been established, it is submitted that Applicant's Example 1 presents evidence that a Na_2O content of 0.2 % by weight or less in the catalyst has advantages that are unexpected over Nakaoka. As mentioned in Applicants' last response, Applicants' catalyst includes a Lewis Acid component. This component has been shown to impart sulfur reduction in gasoline fractions produced in a FCC process. Indeed, it is shown that such Lewis Acid components reduce gasoline sulfur when added to equilibrium catalyst from an FCC process. Applicants show in Example 1, however, that the strength of the component's Lewis acidity is impaired at Na_2O contents above 0.2% by weight of the catalyst. See Figure 1. The reduced strength in Lewis Acidity translates into poorer sulfur reduction performance in a FCC process. See Table 2. It is submitted that the effect of sodium on the performance of this component was not previously known, nor suggested by Nakaoka. It has already been acknowledged in the last Office Action that Nakaoka is completely silent as to the presence of Lewis Acid, and therefore does not suggest the gasoline sulfur reduction benefit of Lewis Acidity. It therefore is further not seen how Nakaoka's limited teaching regarding the Na_2O content of the zeolite Y would therefore motivate one of ordinary skill in the art to enhance the benefit of gasoline sulfur reduction via Lewis Acidity. It is submitted that taking such a position can only be the result of hindsight recognition from Applicants' invention, which is impermissible.

Applicants also respectfully traverse rejection of claim 43 as unpatentable under 35 USC §103(a) over Nakaoka. Nakaoka discloses a hydroprocessing catalyst. Nakaoka does not disclose particular sizes for its complete catalyst particle. Nakaoka does disclose that its zinc component has a particle size up to 100 microns, but it is submitted the zinc is just one element of Nakaoka's catalyst that would be included in a structure that is much larger than 100 microns. Nakaoka describes that its catalyst composition is prepared by combining zinc with matrix material, zeolite, and other components, and then kneaded and formed into a desired shape. See column 4, lines 56-59. Indeed, hydroprocessing catalysts such as those described by Nakaoka are commonly formed extrudates have sizes in the millimeter range. See US Patent 4,705,621, column 4, lines 41-49, where the average maximum dimension is in the range of 1 to 5 millimeters. A catalyst of this dimension or size is designed to perform in fixed bed applications and once place in the catalyst bed, designed to remain settled as feed is fed through the bed. Indeed, it is submitted that the diameter for a typical fixed bed hydroprocessing extrudate ranges from 0.8 to 3 millimeters and a length (e.g., the maximum dimension) ranging from 1 to 10 millimeters. This is well above the range of 20 to 150 microns as recited in claim 43. The particle sizes recited in claim 43 are fluidizable in a FCC unit and reflect the fact the invention was discovered for reducing sulfur in gasoline fractions produced in such units. On the other hand, hydroprocessing catalysts are frequently utilized in fixed bed operations, which do not require, nor would typically dictate the use of the smaller particle sizes typically seen for FCC catalysts. It is therefore respectfully submitted that Nakaoka does not suggest the subject matter recited in Applicants' claim 43, and withdrawal of its rejection is requested.

It is also stated in the Office Action that Applicants have not presented evidence that the prior art product cannot be maintained in a fluidized state. It is submitted, however, that Applicants do not have a burden to come forward with such evidence. The comments in the Office Action are apparently addressing an issue that is in the nature of a rejection under §112, second paragraph, yet such a rejection has not been made. Furthermore, published prior art was not referenced in the Office Action with respect to the fluidizable nature of prior art compositions. The only "prior art" mentioned with respect to particle size was that

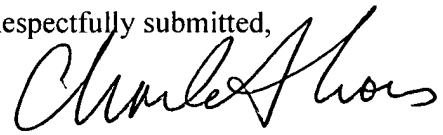
mentioned in the earlier Office Action, i.e., the hypothetical product having the size of tennis balls or sand. It is therefore not seen how the Office Action has established a case requiring the Applicants to disprove.

To the extent the comments in the Office Action or the hypothetical prior art was sufficient to establish a burden to prove a tennis ball or sand is not fluidizable in a FCC unit, Applicants introduced language in their previous correspondence to expressly clarify that the catalyst is capable of being maintained in a fluidized state within a FCC unit. It is submitted that the Examiner must review this amended claim as one of ordinary skill in the FCC art would construe it, i.e., would such a skilled artisan consider a product having the size of tennis balls or sand as being fluidizable in a FCC unit. It is submitted that such a person would not. The size of a tennis ball is clearly not considered to have a size in the range of a "particle", and is measured in inches, not microns. It is also submitted that even a grain of sand, while smaller than a tennis ball, typically has an average particle size as high as 300 microns. It is, therefore, not seen how one of ordinary skill in the FCC art would construe the claim as articulated in the Office Action. It is further submitted that it is irrelevant whether such larger items would be fluidizable by introducing a more powerful airflow in the FCC unit. It is submitted that one of ordinary skill would not alter standard FCC conditions to accommodate materials that are not generally considered fluidizable within conventional FCC conditions, and the Office Action has not cited any reference motivating one of the ordinary skill to do so. It is submitted that suggesting such goes beyond the realm of reasonable interpretation of the claim.

It is also indicated in the Office Action that Applicant has a burden to show that Nakaoka's catalyst does not possess Lewis acidity. As indicated above, Applicants are not arguing whether Lewis acidity is present or not in compositions described by Nakaoka. Applicants are submitting that Nakaoka fails to mention its presence and therefore cannot provide any teaching or motivation to modify the Na_2O content of the catalyst composition to maintain or enhance the effect that the Lewis acidity has on reducing gasoline sulfur.

In light of the above, Applicants request withdrawal of the Final Rejection and submit that Applicants' claims are in condition for allowance. Applicants therefore respectfully request notification to that effect in the form of a Notice of Allowance.

Respectfully submitted,



Charles A. Cross
Attorney for Applicant
Reg. No. 32,406

W. R. Grace & Co.-Conn.
7500 Grace Drive
Columbia, Maryland 21044
Tel: (410) 531-4518
CAC/kas

Charge: DAV/FCC